Remarks

Claims 1-33 were originally pending in the subject application. Claim 33 is canceled herein in accordance with the applicant's election of the Group I claims for prosecution in the current application. Claims 6-9, 21-23 and 27 are currently withdrawn consistent with the applicant's species election; however, the applicant specifically retains the right to rejoinder of these withdrawn claims upon the indication of allowable subject matter. Favorable consideration of the claims now presented, in view of the remarks set forth herein, is earnestly solicited.

The subject invention concerns the addition of an antistatic agent as a processing aid for producing spunbonded fabric. Specifically, the subject invention provides a unique solution to the longstanding problem of the buildup of static during the production of non-woven fabrics using a spunbond process. The flowing of air across the filaments in the spunbond process can generate tremendous amounts of static buildup in the attenuation device, which inevitably leads to defects in the fabric. Therefore, a method is needed for efficiently reducing static. The subject invention which involves feeding an antistatic additive into the extruder, is very advantageous because it reduces static with no color pollution, at minimal cost and with no blinding of filters or packs.

Claims 1 and 2 have been rejected under 35 U.S.C. §103(a) as being obvious over Trimble (U.S. Patent No. 5,397,413) in view of Tortora (*Understanding Textiles*, pages 401 and 402). The applicant respectfully traverses this ground of rejection because the combination of references does not teach or suggest the claimed methods wherein an antistatic agent is used to overcome the long-standing problem of static build-up in the spunbonding process.

Trimble teaches a standard spunbonding process with the steps of using a melt blend of a variety of polymer resins and mixtures thereof, extruding the material to form a plurality of filaments, directing the filaments through a slot draw attenuator, forming a web, and bonding the filaments. However, as the Examiner points out, Trimble does not mention adding an antistatic agent to the blend. In fact, Trimble recognizes the problem of static build-up but essentially teaches away from the current invention by describing the introduction of an

electrostatic charge to the filaments as they exit the attenuator to make the filaments repel one another (see col. 5, lines 27-32).

Tortora mentions using bicomponent fibers containing metal or carbon to reduce static charges in synthetic fibers. Using these bicomponent fibers mentioned by Tortora in the method taught by Trimble would be counter-intuitive because it would greatly reduce the impact of the electrostatic charge introduced by Trimble at the attenuation device exit. Thus, there would have been no reason for one skilled in the art to use the bicomponent fibers of Tortora in the method taught by Trimble.

Additionally, since there is an electrostatic charge introduced at the attenuation device exit in Trimble's method, it is clear that Trimble contemplated that any electrical properties would be altered at this point and not in the melt. The claimed invention teaches addition of antistatic agents in the melt, before the filaments are directed through an attenuation device. Thus, it would not have been obvious to one skilled in the art at the time of the invention to use the bicomponent fibers taught by Tortora in the melt to alter the electrical properties of the fibers.

Furthermore, the bicomponent fibers taught by Tortora are metal, metallized, or contain metal or carbon black. It is known to one skilled in the art that use of these bicomponent fibers causes color pollution, is very expensive, and inserts a yarn or filaments with different orientation or physical properties than that of the filaments created by the spunbonded equipment. Due to these negative effects caused by using these bicomponent fibers, it would not have been desireable to combine the method in the Trimble patent with the fibers taught by Tortora.

It has been well established in the patent law that the mere fact that the purported prior art could have been modified or applied in some manner to yield applicant's invention does not make the modification or application obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 221 USPQ 1125,1127 (Fed. Cir. 1984). Moreover, as expressed by the CAFC, to support a §103 rejection, "[b]oth the suggestion and the expectation of success must be founded in the prior art ..." *In re Dow Chemical Co.* 5 USPQ 2d 1529, 1531 (Fed. Cir. 1988). An assertion of obviousness without the required suggestion or

expectation of success in the prior art is tantamount to using applicant's disclosure to reconstruct the prior art to arrive at the subject invention. Hindsight reconstruction of the prior art cannot support a §103 rejection, as was specifically recognized by the CCPA in *In re Sponnoble*, 56CCPA 823, 160 USPQ 237, 243 (1969).

As noted above, there would be no motivation to modify the teachings of the cited references in order to arrive at the current applicant's advantageous method. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on the Trimble patent in view of Tortora.

Claims 1-5, 14, 15, 17-20, and 26 have been rejected under 35 U.S.C. §103(a) as being obvious over Gillespie (U.S. Patent No. 5,783,503) in view of Tortora (*Understanding Textiles*, pages 153-157, 401, and 402). The applicant respectfully traverses this ground of rejection because the combination of references does not teach or suggest the applicant's claimed invention.

Gillespie teaches producing a spunbond product by originating filaments from a spinneret, attenuating and drawing the filaments through a slot draw apparatus, and depositing the filaments onto a collection surface to form a web. Gillespie does not, though, teach adding antistatic agents to the blend. As the Examiner points out, Gillespie mentions controlling electrical properties by incorporating certain additives into the polymer melt. In the Gillespie invention, this is done to make the filaments more splittable by creating polymers of suitably different properties that do not adhere well to one another (see col. 5, lines 35-42).

Gillespie makes no mention of static levels in the filaments exiting the attenuator or that this may be a problem. Moreover, Gillespie teaches that electrical properties should be controlled for the purpose of developing a triboelectric charge in the filaments to promote separation (see col. 9, lines 53-55). This creates a static charge so that an external electric field can be applied to the filaments to augment separation and control the web laydown (see col. 9, lines 53-60).

The bicomponent fibers mentioned by Tortora reduce static charges in synthetic fibers. Therefore, using these bicomponent fibers would lower the static charges in the filaments and defeat the purpose of the method for producing the product taught by Gillespie, which is to

promote separation of the filaments. Thus, there would have been no motivation for one of ordinary skill in the art at the time of the invention to use the bicomponent fibers mentioned by Tortora in the method for producing the spunbond product taught by Gillespie.

In addition, as discussed above, it is known to one skilled in the art that using the bicomponent fibers taught by Tortora causes color pollution, is very expensive, and inserts a yarn or filaments with different orientation or physical properties than that of the filaments created by the spunbonded equipment. Due to these negative effects, it would not have been obvious to use these bicomponent fibers in the method used to produce the spunbond product taught by Gillespie.

Further, regarding claims 14 and 15, the Examiner states that Gillespie teaches that at least about 5 percent of the surface area of each filament is made of a nylon polymer, referring to Figure 3 and its description. The description is silent on the proportions of each component, though, so the figure must be the source for that conclusion. The Federal Circuit clearly has restricted the citation to patent drawings for their teachings of sizes, saying that "absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value." *In re Olson*, 41 C.C.P.A. 871, 212 F.2d 590, 592, 101 USPQ 401, 402 (CCPA 1954). (See also MPEP §2125). Since the specification does not list any quantitative values, one cannot be certain of the levels of each component.

As set forth above, the combination of Tortora with Gillespie would defeat the purpose of Gillespie. Thus, there is no motivation to modify the teachings of the cited references in order to arrive at the current applicant's claimed method. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on the Gillespie patent in view of Tortora.

Claims 10-13, 16, 24, 25, and 28-32 have been rejected under 35 U.S.C. §103(a) as being obvious over Gillespie (U.S. Patent No. 5,783,503) in view of Tortora (*Understanding Textiles*, pages 153-157, 401, and 402) as applied to claims 1 and 17, further in view of Warburton (U.S. Patent No. 4,081,383). The applicant respectfully traverses this ground of rejection because the combination of references does not teach or suggest the claimed methods.

The shortcomings of the Gillespie and Tortora references have been discussed above in detail. Warburton does not cure or even address, these shortcomings. Warburton teaches a composition and method for improving soil resistance of carpets. The process used is a low temperature system, with the highest temperatures coming in the curing after the carpets or yarns are coated. The curing temperature is less than 200 °C, preferably lower than 160 °C (see col. 7, lines 19-21). Clearly, the applicant's claimed spunbonding method is a high temperature system, with temperatures frequently over 200 °C (see specification, page 6, lines 8-10; page 7, lines 5-7; page 8, lines 1-3). Compounds used in low temperature systems often cannot be used in higher temperature systems due to decomposition temperatures of many compounds. Thus, it would not be obvious to one of ordinary skill in the art to use compounds from the low temperature system taught by Warburton in the high temperature system of the claimed method.

Additionally, as the Examiner points out, Warburton recognizes that polymers can provide the benefit of reducing static buildup (see col. 6, lines 34-37). However, Warburton teaches applying a polymer as a coating material to a finished product, specifically a carpet. The claimed method teaches adding an antistatic agent into the melt for a spunbond nonwoven fabric. These processes are significantly different, and Warburton does not provide any motivation for one of ordinary skill in the art to use an antistatic agent in the melt. Therefore, Warburton does not remedy the deficiencies of Gillespie in view of Tortora.

Regarding claims 12, 13, 24, 25, 29, and 32, the Examiner asserts that Warburton's static would measure at less than 1 kilovolt per inch. However, the applicant's claims all refer to "the static level measured at one half inch below the outlet of the slot attenuation device." Warburton teaches adding an emulsifier in a concentration of 0.5% to 8% by weight, but this emulsifier is part of a coating on a yarn or carpet, not in a melt before filaments are sent through an attenuator. There is not necessarily a connection between adding a polymeric emulsifier in a concentration of 1% by weight as a coating on a carpet or yarn and the static levels that would be measured at the attenuator exit had that compound been added in a melt before being sent through an attenuator. In fact, given that Warburton teaches adding the polymer as a coating late in the production process while the static levels in the process in the

claims were achieved by adding an antistatic agent to the melt, there is no reason to expect that Warburton's static levels would be similar to those that are recited in the current claims.

Thus, the applicant respectfully submits that there is not motivation to combine the cited references to arrive at the claimed invention. See Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985) ("When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself."). "The mere fact that elements of [an invention] may be found in various [references] does not necessarily negate invention." In re McKenna, 203 F.2d 717, 721, 97 USPQ 348, 351 (CCPA 1953). Additionally, the predecessor of the Federal Circuit has opined, "[i]n determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." In re Linter, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. See In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). Therefore, " [w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.' " See In re Beattie, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)). Finally, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

As noted above, there would be no motivation to modify the teachings of the cited references in order to arrive at the current applicant's claimed method. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on the Gillespie patent in view of Tortora and Warburton.

Claims 10-13, 16, 24, 25, and 28-32 have been rejected under 35 U.S.C. §103(a) as being obvious over Gillespie (U.S. Patent No. 5,783,503) in view of Tortora (*Understanding Textiles*, pages 153-157, 401, and 402) as applied to claims 1 and 17, further in view of George (U.S. Patent No. 4,167,464). The applicant respectfully traverses this ground of rejection because the combination of references does not teach or suggest the claimed methods.

George teaches the preparation of highly water absorbent films and fibers by photopolymerizing various compounds. These compounds are dissolved in water and applied to a substrate and dried at about 50 °C (see col. 8, lines 64-65). This is a low temperature system, which, as discussed above, is quite different from the high temperature spunbond system used for the claimed invention. In addition, the process used to create the interpolymer taught by George has nothing to do with and makes no mention of spunbond, nonwoven fabrics or static dissipation. George does not add to the combination of Gillespie in view of Tortora discussed above. Although George mentions some of the compounds cited in the claims, it would not have been obvious to one of ordinary skill in the art to take compounds that are dissolved in water in a low temperature system and use them in a melt for a spunbond, nonwoven fabric to reduce static.

Regarding claims 12, 13, 24, 25, 29, and 32, the Examiner asserts that George's static would measure at less than 1 kilovolt per inch. However, the claims all refer to "the static level measured at one half inch below the outlet of the slot attenuation device." George teaches using compounds in 0.1% to 5% by weight in a photopolymerization process, not in a melt before filaments are sent through an attenuator. Even though similar compounds are used in the George process, that does not necessarily imply that static levels at an attenuator exit would be comparable had the compounds been added to a melt and sent through an attenuator. There is no mention at all of static levels in the process discussed in George, and it is completely different than the processes used to achieve the claimed static levels. Additionally, the temperatures are very different in the George process and the applicant's process, as discussed above, and this can lead to differences in physical properties in compounds, including static levels. Given the significant differences between the processes there is no basis for concluding that George's static levels are similar to those in the current claims.

Furthermore, Federal Courts have held that satisfying a long felt-need and failure of others to achieve a satisfactory solution to a long-felt need both tend to show that an invention is not obvious. *Railroad Dynamics, Inc. v. A. Stucki Co.*, 579 F.Supp. 352, 218 USPQ 618 (E.D. Pa. 1983), *aff'd*, 727 F.2d 1506, 220 USPQ 929 (CAFC), *cert. denied*, 469 U.S. 871 (1984); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971); *Jones v. Hardy*, 727 F.2d 1524, 220 USPQ 1021 (CAFC 1984); *Dow Chemical Co. v. Halliburton Co.*, 631 F.Supp. 666, 227 USPQ 897 (N.D. Miss. 1985), *aff'd without op.*, 790 F.2d 93 (CAFC 1986). As discussed in the specification for the claimed invention, it has been known to one skilled in the art for quite some time that static electricity in the filaments exiting the attenuator for spunbond fabrics causes manufacturing defects (see page 2, lines 17-25; page 3, lines 20-29). Despite this need, no one had come up with a method to significantly reduce the static in a clean, inexpensive manner until the applicant's claimed invention.

Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on the Gillespie patent in view of Tortora and George.

In view of the foregoing remarks, the applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

The applicant also invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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